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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/797,662	03/11/2004	Sven Antoin Johan Hol	081468-0308380	3921
909	7590	11/23/2005	EXAMINER	
PILLSBURY WINTHROP SHAW PITTMAN, LLP			GUTIERREZ, KEVIN C	
P.O. BOX 10500				
MCLEAN, VA 22102			ART UNIT	PAPER NUMBER
			2851	

DATE MAILED: 11/23/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/797,662

Applicant(s)

HOL ET AL.

Examiner

Kevin Gutierrez

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 09 November 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 3-11-04 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 3/11/04
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☒ Other: JP 2001161053

## DETAILED ACTION

### *Election/Restrictions*

1. Applicant's election with traverse of Species I (figure 2) in the reply filed on November 9, 2005 is acknowledged. The traversal is on the ground(s) that independent claims are generic and the subject matter of all claims is sufficiently related that there would be no additional search; thus, there would be no serious burden. Applicant further indicated that all claims should be examined to avoid unnecessary delay and expense to applicant by duplicative examination by the Patent Office. This is not found persuasive.

Regarding the generic independent claims, the Applicant has not demonstrated that the species are not patentably distinct. Regarding examination search, the fields of search do not dictate the restriction requirement. Furthermore, the inventions are patentably distinct for the reason set forth in the restriction requirement. Hence, the burden in the examination of multiple inventions lies in consideration of the patentably distinct inventions in one application. In addition, the expense to applicant is not germane to the issue. Additionally, it would not be a duplicative examination by the Patent Office because the inventions are not the same.

The requirement is still deemed proper and is therefore made FINAL.

### *Drawings*

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, "the first and

second magnetic plates are inclined towards each other (pg. 15, claim 8)” must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Claim Objections***

3. Claim 2 (page14) is objected to because “said coil block” lacks proper antecedent basis.

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless -

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1, 2, 10-12 are rejected under 35 U.S.C. 102(b) as being anticipated by Emoto et al (US 2002/0089239).

Regarding claims 1, 10 and 11, Emoto et al disclose

- “a radiation system (1) configured to supplying a beam of radiation;
- a support structure (2) for supporting a patterning device ([0026], line 8; reticle) that imparts a desired pattern to said beam of radiation;
- a substrate holder (4) configured to hold a substrate ([0026], line 9; wafer);
- a projection system (3) configured to project said patterned beam of radiation onto a target portion of said substrate; and
- a linear motor (24, 26) configured to move one of said support structure and said substrate table, said linear motor comprising ([0002]):
  - a first magnetic plate (19; movable magnets);
  - a second magnetic plate arranged opposite to said first magnetic plate (see Fig. 2B, where a pair of movable magnets 19 are depicted as being opposite to each other);

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- and an open coil unit (16), interposed between said first and second magnetic plates (see Fig. 2B, where 16 is between the pair of magnets 19, including a plurality of coils (16) wound about respective ferromagnetic cores (51; core members; [00063], lines 7-8, where the core is a high-thermal-conductivity material; Fig. 2B, where each B portion contain a core and coils),

- wherein said first and second magnetic plates ([0073], last sentence) and said coil unit are relatively moveable [0064], lines 5-8, where the coil can be positioned)."

Regarding claims 2 and 12, Emoto et al disclose "wherein said coil block (16) comprises three coil sets with each coil set comprising one or more coils (Fig. 2B, where 16 contains at least 3 B portions; Fig. 4 depicts each B portion, which contains more than one coil 16)."

### ***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claims 3 and 13 are rejected under 35 U.S.C. 103(a) as being obvious over Emoto et al.

Emoto et al disclose the claimed invention except for "wherein said coil unit further comprises at least one additional ferromagnetic member having no coil wound

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thereon and being spaced from an outermost one of said coils.” It would have been obvious to one having ordinary skill in the art at the time the invention was made to have a coil unit that comprises at least one additional ferromagnetic member having no coil wound thereon and being spaced from an outermost one of said coils, since it has been held that the elimination of an element (coil) and its function in combination where the remaining elements perform the same functions as before involves only routine skill in the art. *In re Kuhle*, 526 F.2s 553, 188 USPQ 7 (CCPA 1975).

8. Claims 4 and 14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Emoto et al in view of Suzuki et al (US 2003/0205941).

Emoto et al disclose a ferromagnetic core with coils wound around them and a coolant conduit is provide between said cores and in thermal contact with said coils ([0070], last sentence, where a jacket is disposed around the coil and provided with a coolant).

Emoto et al does not disclose “wherein said ferromagnetic cores project beyond said coils wound around them.”

However, having “wherein said ferromagnetic cores project beyond said coils wound around them” is known to the art as it is evident by the teaching of Suzuki et al (Fig. 1, where 12a extends beyond 12b). Thus, it would have been obvious to one ordinary skilled in the art at the time the invention was made to modify the core

member of Emoto et al by having extended portion for at least the purpose to provide another connecting point to the housing.

9. Claims 5, 6, 15 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Emoto et al in view of Suzuki et al, as applied to claim 4, and in further view of Nakamura et al (US 2002/0056548).

Emoto et al further disclose a coolant conduit in contact with the coil, but does not disclose “wherein said coolant conduit is formed of a ceramic material.”

Emoto et al further disclose a core member made of a high-thermal conductivity material and utilizes a coolant conduit to maintain the temperature of the coils. In another embodiment, he discloses a core member made of a low-thermal conductivity material (i.e. ceramic or the like). However, having “wherein said coolant conduit is formed of a ceramic material” is known to the art as it is evident by the teaching of Nakamura et al ([0033], lines 5-7). Thus, it would have been obvious to one ordinary skilled in the art at the time the invention was made to further modify the coolant conduit of Emoto et al as modified to have a coolant conduit formed of a ceramic material for at least the purpose of employing heat exchange throughout the linear motor apparatus.

Regarding claims 6 and 16, Emoto et al further disclose “wherein said coils comprise a foil (53; foil wire; [0023], lines 6-8).”

10. Claims 7 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Emoto et al in view of Markle (6,441,514).

Emoto et al as modified further disclose magnetic plates, but does not disclose “wherein said magnetic plates comprise Halbach magnets.”

However, “wherein said magnetic plates comprise Halbach magnets” is known to the art as it is evident by the teaching of Markle (see abstract). Thus, it would have been obvious to one ordinary skilled in the art at the time the invention was made to further modify the magnetic plates of Emoto et al as modified by including Halbach magnets for at least the purpose of producing a more compact and energy efficient driver stage.

11. Claims 8, 9, 18 and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Emoto et al in view of Moriyama et al (JP 2001161053).

Regarding claims 8 and 18, Emoto et al disclose a first and second magnetic plates that are position opposite to each other, but does not disclose “wherein said first and second magnetic plates are inclined towards each other.”

However, “wherein said first and second magnetic plates are inclined towards each other” is known to the art as it is evident by the teaching of Moriyama et al (see solution, where the pair of magnets are mounted at a predetermined angle). Thus, it would have been obvious to one ordinary skilled in the art at the time the invention was made to modify the first or second magnets of Emoto et al by having the first and second magnets position and an inclination towards each other.

The ordinary artisan would have been motivated to modify the magnets of Emoto et al in a manner described above for at least the purpose to produce various voltage values.

Regarding claims 9 and 19, Emoto et al further disclose “further including means for varying the commutation angle applied to coils of said coil unit ([0085], lines 6-7).”

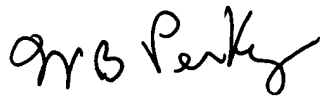
### ***Conclusion***

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Kageyama et al (US 2003/0080631) disclose a coil with an extended core, Goldner et al (US 2003/0034697) disclose a electromagnetic linear generator with coils between magnets and Korenaga (US 2003/0102723) discloses a linear motor with a movable magnet.

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin Gutierrez whose telephone number is (571)-272-5922. The examiner can normally be reached on Monday-Friday: 7:30 a.m. - 4:30 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Judy Nguyen can be reached on (571)-272-2258. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



**William Perkey**  
**Primary Examiner**

Kevin Gutierrez  
Examiner  
Art Unit 2851

November 16, 2005